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Gaze of Olympic speedskaters skating at full speed on a regulation oval: perception-action coupling in a dynamic performance environment

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Abstract Speedakating is the fastest sport performed by humans without the aid of a machine or banking of the surface upon which the action occurs. Champion speedskaters reach speeds in excess of 49 kph on a flat oval of ice where centrifugal forces continually work to throw the skater off the track. The gaze of elite speedskaters was recorded using a mobile eye tracker while skating at full speed on an Olympic Oval. The skating strides were recorded concurrently and the data analyzed in real space and time. The results show that specific gaze behaviours define faster skating speeds. These gaze are unique and show that both the location of the gaze on the ice surface and the afferent information being acquired work to help the skater maintain perceptual control over the dynamics of the action.

